U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

PROFESSIONAL PAPER 1525
PLATE 2

DESCRIPTION OF GEOLOGIC TERRANES

al **Alluvial terrane**—Holocene, Pleistocene, or pre-Pleistocene unconsolidated or poorly consolidated deposits; mostly gravel, sand, silt, and clay

pl **Eocene Plutonic terrane**—Eocene batholiths, large (several square miles) to small stocks, and associated hypabyssal dike swarms. Includes the Casto pluton, the Sawtooth batholith, and two suites of rocks informally called the diorite complex and the gray porphyry (Fisher and others, 1992, Map I-1819, in pocket). Rocks are part of a diorite-granite bimodal group having end members of about equal areal extent; large granite plutons and smaller but more numerous diorite exposures

vo **Challis volcanic terrane**—Eocene extrusive volcanic rocks and volcaniclastic sediments of the Challis Volcanic Group. Includes lava, flow breccia, tuff, tuff breccia,waterlaid tuff, mudflows, slump breccia, intracaldera lake-bed sandstone and siltstone, and debris-avalanche deposits. Also includes felsic to mafic hypabyssal dikes, sills, plugs, domes, and small, irregular stocks related to individual volcanic centers. Rocks are calc-alkaline, and compositions range from MgO-rich basalt to alkali rhyolite, intermediate compositions such as dacite and rhyodacite being volumetrically predominant

ba **Idaho batholith terrane**—Late Cretaceous plutonic rocks of the Idaho batholith; includes tonalite, hornblende-biotite granodiorite, porphyritic granodiorite, biotite granodiorite, muscovite-biotite granite, and leucocratic granite

bs **Black shale terrane**—Permian to Cambrian(?) sedimentary rocks predominantly composed of black, fine-grained argillite; siltite; limy sandstone; siltstone; shale; fine-grained quartzite; and micritic limestone. Includes Grand Prize Formation, Wood River Formation, Salmon River assemblage, Ramshorn Slate, and Garden Creek Phyllite

ca **Carbonate terrane**—Mississippian to Proterozoic sedimentary rocks in which limestone, dolomite, or both are predominant. Sand and silt are present as impurities in some places, and interbeds of argillite, siltstone, and fine sandstone, from a few inches to tens of feet thick, are part of some formations. Mostly Saturday Mountain Formation (Early Silurian to Middle Ordovician), Ella Dolomite (Middle Ordovician), and Bayhorse Dolomite (Early Ordovician or Late Cambrian)

ms **Proterozoic terrane**—Proterozoic metasedimentary and metamorphic schist, dolomitic marble, quartzite, argillaceous quartzite, argillite, and metavolcanic rocks. Includes Hoodoo Quartzite and Yellowjacket, Gunsight, Apple Creek, Big Creek, Swauger, and Lawson Creek Formations

Trans-Challis fault system terrane—Northeast-southwest-trending zone of high-angle faults, including caldera- and graben-bounding faults

Regions of overlap between carbonate terrane and black shale terrane

Mostly rock glaciers; alluvial fans; landslide debris; talus; and terminal, end, and lateral moraines—Also includes Miocene volcanic and sedimentary rocks and noncarbonate roof pendants in the Idaho batholith of undivided (Paleozoic? or Proterozoic?) age. These deposits contain no known mineral resources in the Challis quadrangle

Terrane boundary

Boundaries of calderas and other volcano-tectonic structures—Dashed where approximately located

Faults exclusive of those associated with the trans-Challis fault system

High-angle fault—Bar and ball on downthrown side

Thrust fault—Sawteeth on upper plate

Base modified from U.S. Geological Survey, 1957
Limited revision 1963
100,000-foot grids based on Idaho coordinate system, central and west zones

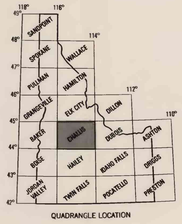
SCALE 1:250 000

5 0 5 10 15 20 25 MILES

5 0 5 10 15 20 25 KILOMETERS

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100-FOOT INTERVALS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

1995 MAGNETIC DECLINATION VARIES FOR THIS SHEET FROM 16°30' EASTERLY FOR THE CENTER OF THE WEST EDGE TO 16°00' FOR THE CENTER OF THE EAST EDGE. MEAN ANNUAL CHANGE IS 5' WESTERLY



QUADRANGLE LOCATION

GEOLOGIC TERRANES OF THE CHALLIS 1° × 2° QUADRANGLE, IDAHO

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1995